

DOCKET NO. P04949 (NATI15-04949)
U.S. SERIAL NO. 09/862,986
PATENT

IN THE CLAIMS

Please amend the claims as follows.

1. (Cancelled)

2. (Previously Presented) An apparatus for providing a secure serial bus (USB) comprising a secure channel for transferring data, wherein said apparatus comprises a secure USB domain device coupled to an external host computer, wherein said secure USB domain device comprises elements that are not accessible by said external host computer.

3. (Currently Amended) [[An]] The apparatus as claimed in Claim 2 wherein said secure USB domain device comprises:

a USB memory device that is not accessible by said host computer;

a USB processor that is not accessible by said host computer;

a USB host controller that is not accessible by said host computer; and

an internal USB bus that couples said USB memory device, said USB processor, and said USB host controller.

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4. (Currently Amended) ~~[[An]]~~ The apparatus as claimed in Claim 3 further comprising a USB node coupled to said USB bus, said USB node capable of being coupled to a USB tree.

5. (Currently Amended) ~~[[An]]~~ The apparatus as claimed in Claim 2 wherein said apparatus comprises a secure USB domain device embedded within a host computer.

6. (Currently Amended) ~~[[An]]~~ The apparatus as claimed in Claim 5 wherein said secure USB domain device comprises:

a USB memory device that is not accessible by said host computer;

a USB processor that is not accessible by said host computer;

a USB host controller that is not accessible by said host computer; and

an internal USB bus that couples said USB memory device, said USB processor, and said USB host controller.

7. (Currently Amended) ~~[[An]]~~ The apparatus as claimed in Claim 6 further comprising a virtual conduit interface coupled to said secure USB domain device and coupled to at least one non-USB device, said virtual conduit interface capable of providing a secure USB channel for transferring information to said at least one non-USB device.

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8. (Previously Presented) An apparatus for providing a secure universal serial bus (USB) capable of transferring information over a secure channel, said apparatus comprising:

at least one host computer capable of supporting USB input/output devices, said at least one host computer comprising a USB bus, USB client software, and USB system software; and

a secure USB domain device capable of at least one of: blocking outgoing data flows of confidential information, forwarding outgoing data flows of encrypted confidential information, and forwarding outgoing data flows of non-confidential information.

9. (Previously Presented) The apparatus as claimed in Claim 8 wherein said secure USB domain device comprises:

a plurality of USB devices;

a first set of data channels for exchanging data with each of said plurality of USB devices; and

a second set of data channels for exchanging data with said at least one host computer.

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10. (Currently Amended) [[An]] The apparatus as claimed in Claim 8 wherein said secure USB domain device is embedded within said at least one host computer.

11. (Currently Amended) [[An]] The apparatus as claimed in Claim 10 wherein said secure USB domain device comprises:

a USB bus;

a memory coupled to said USB bus capable of storing each data packet that is at least one of sent from and received by said secure USB domain device, said memory containing a set of buffers, each of said buffers comprising data associated with at least one of: said at least one host computer and a device coupled to said at least one host computer;

circuitry coupled to said USB bus, said circuitry capable of forwarding commands and requests for information received in said secure USB domain device;

a processor coupled to said USB bus, said processor capable of at least one of: classifying data packets, controlling forwarding operations, and controlling encryption operations; and

a USB host controller coupled to said USB bus, said USB host controller capable of managing data flow between said at least one host computer and a plurality of USB devices.

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12. (Currently Amended) [[An]] The apparatus as claimed in Claim 11 wherein said apparatus further comprises a virtual conduit interface coupled to said secure USB domain device and coupled to at least one non-USB device, said virtual conduit interface capable of providing a secure USB channel for transferring information to said at least one non-USB device.

13. (Currently Amended) [[An]] The apparatus as claimed in Claim 8 wherein said secure USB domain device is external to and coupled to said at least one host computer.

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14. (Currently Amended) [[An]] The apparatus as claimed in Claim 13 wherein said secure USB domain device comprises:

a USB bus;

a memory coupled to said USB bus capable of storing each data packet that is at least one of sent from and received by said secure USB domain device, said memory containing a set of buffers, each of said buffers comprising data associated with at least one of: said at least one host computer and a device coupled to said at least one host computer;

circuitry coupled to said USB bus, said circuitry capable of forwarding commands and requests for information received in said secure USB domain device;

a processor coupled to said USB bus, said processor capable of at least one of: classifying data packets, controlling forwarding operations, and controlling encryption operations; and

a USB host controller coupled to said USB bus, said USB host controller capable of managing data flow between said at least one host computer and a plurality of USB devices.

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15. (Previously Presented) A method for providing a secure universal serial bus (USB) capable of transferring information over a secure channel, said method comprising the steps of:

providing at least one host computer capable of supporting USB input/output devices, said at least one host computer comprising a USB Bus, USB client software, and USB system software; and

providing a secure USB domain device capable of at least one of: blocking outgoing data flows of confidential information, forwarding outgoing data flows of encrypted confidential information, and forwarding outgoing data flows of non-confidential information.

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16. (Previously Presented) The method as claimed in Claim 15 wherein the step of providing a secure USB domain device capable of at least one of: blocking outgoing data flows of confidential information, forwarding outgoing data flows of encrypted confidential information, and forwarding outgoing data flows of non-confidential information, comprises the steps of:

storing each data packet received by said secure USB domain device in a memory containing a set of buffers, each of said buffers comprising data associated with at least one of: said at least one host computer and a device coupled to said at least one host computer;

forwarding commands and requests for information received in said secure USB domain device;

classifying each data packet sent from said device coupled to said at least one host computer to said secure USB domain device to one of: a first data type that requires no intervention and a second data type that requires intervention according to a buffer association;

forwarding data packets of the first type that are originated at said device to said at least one host computer;

blocking data packets of the second type that contain confidential information;

forwarding data packets of the second type that contain encrypted confidential information; and

forcing any exchange of data between said at least one host computer and said device coupled to said at least one host computer to flow through said secure USB domain device.

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17. (Previously Presented) The method as claimed in claim 16, wherein the step of blocking data packets of the second type that contain confidential information, and the step of forwarding data packets of the second type that contain encrypted confidential information, comprise the steps of:

interrogating a header of each data packet of the second type to reveal a type of information required;

transferring said information in an encrypted form if the information is required at another host computer for further actions; and

if said information is required for data verification:

blocking the data packet;

receiving verification information from said at least one host computer in an encrypted form;

decrypting said verification information;

comparing said decrypted verification information with information received from said device coupled to said at least one host computer; and

providing said at least one host computer with an indication verifying whether a match was detected.

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18. (Previously Presented) The method as claimed in Claim 15, wherein secure information is transferred between said at least one host computer and said secure USB domain device in a enciphered form, thereby establishing at least one secure data channel between said at least one host computer and said secure USB domain device.

19. (Original) The method as claimed in Claim 15, wherein data flows from a first device to a second device directly through said secure USB domain device without utilizing resources of said host computer.

20. (Original) The method as claimed in Claim 15, further comprising the steps of:

coupling a virtual conduit interface to said secure USB domain device;

coupling said virtual conduit interface to at least one non-USB device; and

using said virtual conduit interface to provide a secure USB channel for transferring information to said at least one non-USB device.